HOW TO GROW MARIJUANA

HIGH-QUALITY MARIJUANA FROM YOUR OWN INDOOR AND OUTDOOR GROWING SYSTEM

HAROLD PETERSON

HOW TO GROW MARIJUANA

High-Quality Marijuana from your own Indoor and Outdoor growing system.

By

Harold Peterson

© Copyright 2019 - All rights reserved.

The content contained within this book may not be reproduced, duplicated or transmitted without direct written permission from the author or the publisher.

Under no circumstances will any blame or legal responsibility be held against the publisher, or author, for any damages, reparation, or monetary loss due to the information contained within this book. Either directly or indirectly.

Legal Notice:

This book is copyright protected. This book is only for personal use. You cannot amend, distribute, sell, use, quote or paraphrase any part, or the content within this book, without the consent of the author or publisher.

Disclaimer Notice:

Please note the information contained within this document is for educational and entertainment purposes only. All effort has been executed to present accurate, up to date, and reliable, complete information. No warranties of any kind are declared or implied. Readers acknowledge that the author is not engaging in the rendering of legal, financial, medical or professional advice.

By reading this document, the reader agrees that under no circumstances is the author responsible for any losses, direct or indirect, which are incurred as a result of the use of information contained within this document, including, but not limited to, — errors, omissions, or inaccuracies.

Table of Contents

Chapter One

- Introduction
- Tools needed for growing cannabis
- Cannabis, Hemp and Marijuana
- History of Marijuana.
- Benefits of Marijuana

Chapter Two

- Marijuana Cultivation
- Growth stages of Marijuana
  - Advanced cultivation methods include:
- How to grow Marijuana outdoors
  - Benefits of growing weed outdoors
  - Stage 1: Select the Outdoor space for the cultivation
  - Stage 2: Decide on cannabis genetics
  - Stage 3: Get some Soil.
  - Stage 4: Get some fertiliser
  - Stage 5: Choose your containers

Stage 6: Give your cannabis plants water.

Stage 7: Protect your cannabis plants

How to Grow Marijuana Indoors

Benefits of growing weed indoors.

Step 1: Designate cannabis to grow room or space

Step 2: Choose your cannabis to grow lights

Step 3: Give your cannabis plants air

Step 4: Pick your climate controls and monitors

Step 5: Decide on cannabis grow medium

Step 6: Pick a container

Step 7: Feed your cannabis plants nutrients

Step 8: Water your cannabis plants

Chapter Three

Pest and disease that affect marijuana

White Powdery Mildew (Cause: Fungi Golovinomyces).

Gray Mold, aka. Bud Rot (Cause: Fungi Botrytis)

Fusarium Wilt & Root Rot (Cause: Fungi Fusarium)

Spider mites (Culprit: Arachnid Tetranychus urticae)

Damping Off & Pythium Rot (Cause: Fungi/Protist Pythium)

Pests that disrupts the growth of your weed

Harvesting Cannabis

Curing

Chapter Four

Post Harvesting and Preservation Processes

Industrial Hemp vs High CBD Medical Hemp differences

Hemp Harvesting

Hemp Drying and Storage

High CBD Hemp post-harvest processing

Hemp Storage and Distribution

Tips for Growing Cannabis

Get Better Buds with Less Light

Cut Back on Fertiliser

Drought Stress Boosts Potency of your Plants

Choose Your Strain Wisely

Airflow and More Airflow!

Don't Shock Your Plants

Chapter Five

Conclusions

Chapter One

Introduction

Many people may accept that cannabis cultivation is illegal. The truth is that there are many benefits of growing cannabis without being a pharmaceutical dealer, depending on the questions you ask. No matter how and where you live, and whether cannabis is legal, you could become a legal cannabis dealer. Growing weed (as it is generally referred to) is that it's simple, needs little space and can, therefore, be done in a small pot indoors. Nonetheless, before you get the full return, it will initially disappoint you.

In the United States and many other countries worldwide, legal cannabis is becoming the practice. While it’s not yet official, whether it is legal or illegal, it is tolerated in most of Europe. If you’ve chosen to cultivate cannabis of your own. Well done! You will soon become part of a society that rapidly develops domestic marijuana, a practice that is spreading throughout the world. Growing your weed will ensure that you have high-quality buds, therefore, the practice is enjoyable and affordable. Marijuana is a dynamic plant that can be cultivated all year round in several settings, in greenhouses or indoors.

One of the reasons you would like to learn how to cultivate cannabis is because it enables you to handle the product. It gives you control over nearly every part of the process. It is a beneficial method, and there are so many different ways to be a good cannabis farmer. After you have some experience, you can then build a system that works well for you in the environment you currently live. If you want to organically grow weeds, use sole containers or even raised beds hydroponically or probably, any method that works best for you while enjoying the process.

Controlling the growing process gives people the chance of guaranteeing outstanding protection when germinated seeds are placed in the soil grow into the end product. Growing marijuana yourself means you can decide not to use fungicidal products, pesticides, fertilisers, miticides and other substances which are considered harmful to your plant, which, in one way or another can affect your immune system. There is no clarity about growing techniques in some states which makes the plant unsafe for medicinal purposes unlike when cultivating for personal medicinal uses. You will monitor the drug and how it works for you when you grow it at home. Moreover, you won’t ever think about your source running out!

Tools needed for growing cannabis

Get a Growing Tent

Now, the room is the common thing to remember first. You need space, and it should be adequate to develop the quantity of weed you expect. I would suggest investing in the right tent size and price. Tents are typically not expensive, and a single individual can set them up. Some tents do come with hydroponic equipment of all kinds. You should, however, just want to buy the form and size you like, so you don't have to get the most expensive tent to cultivate the plant. However, you should find a tent that has separate chambers, mainly if you are starting with a single bed and are still learning how to cultivate cannabis.

Best Grow Lights For Cannabis or A Glowlight

Invest in a HID glow light or an MH device with reflectors. Bulbs or an HPS light will be ideal as well. If you don't want the light to produce too much heat because you already live in a place like the North American state of Texas or some other dessert, use LED lamps. Ideally, the light which you invest in should cover the entire tent and be connected to a temporary device that activates and disables it.

Exhaust Fan as Well as an Activated Carbon Filter

An exhaust ventilator helps to eliminate the heat while a carbon filter helps to eliminate the smell. Nonetheless, make sure the ones which you get are sufficiently large enough for your tent or that the space is big enough for both pieces. Please note, that the fan is meant to circulate air because stagnant air is terrible for growing weed or any other related plant. Also, you would like to have a hygrometer or thermometer to track moisture and temperature.

Cannabis Seeds

How to get marijuana seeds to cultivate cannabis? Unfortunately, this doesn't mean you can get clones or seeds from any dispensary or a friend via e-mail if you don't have easy access to any such clones or seeds. If you are not developing them lawfully (which we advise) make sure that it is not sent to the same address you want to grow them at. Often, it’s advised to legally cultivate marijuana, or the results can be severe depending on where you live.

A Lot of Loose Soil

Get clean, airy, loose soil worth 3–5 gallons which is excellent for hydroponic cultivation. If you are using buckets, cut holes in the ground and add a saucer that catches a flow under them. Also, increasing resources that are generally used to aid all plant growth are worth purchasing. Seek a famous brand to receive the highest quality nutrients.

If you have all of the above, the fun part comes if you like growing things! You need to grow the seeds after planting them. which you recently purchased from one of the top 10 seed banks or even the rooting clones. The seeds or rooted clones need some light to grow. When you trigger the light, the reflector will be lowered and needs to be close to plants so that they don't have to reach for the light. Then, as the plant grows, the lighting device can be gradually raised. At the beginning of the day, the light will be set at a time of 18 hours, so it is only six hours a day. Your marijuana plant will begin to grow several branches and leaves, however, without flowers during the vegetative state or in a variety of auto-flowering seeds.

Whether you grow cannabis outside or inside, overwatering and overfeeding must essentially be avoided. It's better to add more nutrients or water a little later than, to reduce it if it's too much. The roots of marijuana prefer dry and rainy periods as a whole. To find out how the plant grows and to monitor the roots raise the pot or bowl. Burned leaf tips are the symptoms of a plant with too many nutrients. The thumb rule is to

stay away from the water and nutrients in question. If you have limited room for cannabis growing, ensure that you stick to a few essential rules: because your room is small, you must ensure that each inch you have is thoroughly utilised for the plants. You can choose whether to grow Hashplant or Afghani number one or if you want to grow Green Crack, the Pineapple Express or Zkittlez by using training techniques.

The pruning is one thing that helps maximise yield. Starting early and doing so from time to time is vital. Cut branches just above the node and a few shoots can appear. Once you prune in time, the marijuana plant will look like a bonsai broom, which means a lot of buds on the ground, but not too much of the plant. Now, this is the best way to make the most of a yard, but the only downside is an increase in vegetation. Many newbie farmers are making a significant mistake by tapping the plant as it starts to bloom. If you do, the harvest is affected. When the branches look like they expand to the Sun, they can be bent and tied as quickly to keep them from burning. Alternatively, a chicken cable could be used to create a tree network that could further disperses the buds on-site and thus increase the return. Take the time to train all the through shoots to fill all the empty areas along the underside of your screen.

Once buds are harvested, the ability to cultivate cannabis is just as important. The most convenient way to check the correct harvest time is to

use a large glass of loupe to show the trichomes, often referred to as the "crystals," which are the thin, glandular stalk. The psychoactive compound we all like is within this gland, i.e. CBD, THC and so on. It is time for the drums to harvest them if they get cloudy white just before they turn amber. The sprout must be cut and hung to dry once it is harvested. Around a week, depending on the time of the year and moisture, these may dry up. If you don't want to make things dry up rapidly, before four days, then brace yourself for a weird taste like chlorophyll. If you believe the nuggets are drying too early, the drying process can be further enhanced with a humidifier in the drying area. A word of advice for fans is not to allow them to blow directly on the buds, but rather to prevent mould and redness, and the air should circulate adequately.

If the buds are dry enough, they can be placed in a jar. One way of knowing is that the stems are still bent a little, but the flowers will be like dry paper. But even now, there is water in the bud, but during the curing process, it will come out. Store and leave the buds in a dim, cold, dry and opaque pot. You will then open and remove the jars when you see the condensation on the bottom. It helps replenish the air inside by opening the jars twice a day to close. The curing process takes about a month to complete for the buds to have the perfect taste and burn quickly at this stage.

In general, both outdoor and indoor cannabis are approximately handled the same. Elements like birds, rodents, worms, etc. are what you need to take care of outside. Moreover, the right methods should always be used. Take comprehensive notes and don't allow initial errors to disable you; it is part of the study process. Moreover, it can also contribute to the right form of growing marijuana that works best where you live and what final returns you want to achieve.

Cannabis, Hemp and Marijuana

One of the oldest crops planted over 12,000 years ago, and more than 30,000 years ago, cannabis, hemp or marijuana was domesticated. More fuel, fibre, food and medicines are more produced from them than any other plant. The most active and nutritious vegetable oil and protein are derived from cannabis seeds. Hemp produces more fibre (its stalks and stems) than any other plant and can be used in the manufacture of paper, cloth, lace, fabric and construction materials. More than 100 distinct substances known as cannabinoids with many physical and psychological effects are also contained in cannabis flowers and leaves.

The difference between hemp, cannabis and marijuana is somewhat confusing. The scientific reference to hemp, cannabis or marijuana is the Latin word Cannabis sativa; Cannabis Indica varieties are just different forms of the same crop grown initially in India. It's a species and not a genus. Crossbreeds of both Indian and sativa are in almost every form of cannabis used for medicines and social uses today. There are some which have also been noted, such as Cannabis Ruderalis and many other cannabis drugs, like Cannabis Americana, which have been developed by modern pharmaceutical companies like Eli Lilly and Parke Davis.

In the Cannabaceae family, cannabis is a flowering plant genus comprising three principal species: the cannabis sativa, the cannabis indica, and the

cannabis ruderalis. While hemp and marijuana, sometimes referred to as cannabis “species” or “strains,” do not classify as species. Yes, theoretically they should not be treated at all as plants. Hemp and marijuana are the only wide-ranging cannabis classifications that have been introduced in our society, but for the cannabis plant, it is not a legitimate nomenclature.

Let us look at what each of the words mean and how they relate to cannabis to explain the difference between hemp and marijuana and clear up the smoke of this often misinformed issue. The meanings under US law are precise. Diverse parts of the same cannabis plant are classified as hemp, and sections are classified as cannabis or marijuana. According to their viability, the seed can be defined as either cannabis or marijuana. Under US law, hemp is the stile, stem and sterilised seed of sativa cannabis and marijuana is the bulbs, leaves and viable seeds of sativa cannabis.

Hemp is a term used to describe Cannabis varieties of 0.3% or less (dry weight) THC content. Whereas, before the Agricultural Law of 2018 was passed, "hemp" had traditionally been used to describe non-intoxicating cannabis harvested for commercial use from its derived products. The legal term mentioned above was only legitimised. Many claim that hemp is the first plant ever used by humankind with evidence of its use

throughout history, including the discovery of material produced from hemp more than 10,000 years ago. Hemp has been the catalyst for the earliest inventions of man with the ability to generate essential resources like food, clothes, paper, housing, and more.

Marijuana is the term used to classify cannabis varieties containing more than 0.3% THC (dry weight) which can induce a user with psychotropic and euphoric effects. The use of this word in American society is widely accepted, but the lack of cannabis is shockingly insufficient. In early American history, the term “marijuana” was not available, and the term “cannabis” was the predominant word used to describe the plant. Most educated individuals and organisations within the cannabis industry declined to use the term, and some found it “racist.” Between 1910 to 1920, nearly 1 million Mexicans fled to the USA for refuge from the Mexican Revolution. During this time, the anti-Mexican sentiment began to rush up, and the word "marijuana" came to be used by Mexican immigrants as a derogatory connection. Soon after, rumours began to appear, warning Americans about dangerous and destructive trends, which led to an even more significant increase in anti-Mexican sentiment by using the term "Mexican cannabis" or "locoweed." The government started regulating cannabis more vigorously as the negative view of cannabis increased. By 1927, 11 states had passed anti-marijuana laws, anti-

marijuana propaganda in the 1930s and there was full scope for “Reefer Madness” fear. The federal government effectively outlawed “marijuana” following the passage of a 1937 marijuana-tax Act that imposed heavy unrealised taxes on plant possession, selling and transportation, paving the way for 80 years of prohibition on cannabis.

A farmer must carefully evaluate the plant at any point of its life cycle and maintain correct environmental conditions, including the appropriate temperature, lighting and moisture to cultivate a marijuana or cannabis plant successfully. On the other hand, hemp is cultivated to optimise size and production. Hemp usually grows outdoors and does not require the degree of control and care needed to cultivate marijuana.

The distinguishing feature between the two is based on the meaning used to characterise hemp and marijuana, this is the amount of THC in the plant or rather whether it can get the user high. Although it is essential to consider the intoxicating characteristics of each plant, the classification of cannabis either as hemp or cannabis, based on a single characteristic provides a distorted image of the nature of cannabis which downplays its usefulness.

Cannabis as hemp or marijuana can be categorised as sweet and sour without considering the varied characteristics of any plant. Cannabis is

categorised as either hemp or marijuana.

Furthermore, hemp and marijuana can also seem indistinguishable. This has prompted many law enforcement agents to arrest for and seize hemp, which is 100% legal, because it looked just like "marijuana." Hemp or marijuana classification is not well known, and each have a specific purpose. However, because these concepts are profoundly ingrained in our culture, the dilemma is challenging to solve. The solution is to believe that these words never existed and that a re-education of our culture over time would be the only practical solution.

In the meantime, it is probably best to learn what cannabis and marijuana mean, and how in our culture and the justice system, they are used to recognise your rights when handling them and to prevent any problems with the usage of cannabis or CBD items.

Although the topic can be a little bit complicated and confusing, I hope I have clarified this significant problem and explained the difference between hemp and marijuana adequately. Such terms have been deeply rooted in our community and society. Given the inconsistent application of the words, "hemp" and "marijuana," America undoubtedly must be re-educated about hemp and marijuana, but it will take time to reverse this problem.

As these words are used in a legal context, it is necessary to understand what they mean, how they differ and how it applies to cannabis to understand your rights and to avoid future legal problems when you use CBD products.

History of Marijuana.

Marijuana, known as cannabis or weed, has a long history of human use. Although the plant did not grow rampantly in most ancient cultures, it was probably started in Asia around 500 BC as herbal medicine. Cannabis cultivation in the United States was achieved in the past by the early colonists, who developed hemp for cloth and textiles. Political and racial influences in the twentieth century contributed to the criminalisation of marijuana in the United States.

Initially developed in Central Asia, the cannabis or hemp plant was first introduced to Africa, Europe, and finally the USA. Clothing, paper, sails and fabrics were made with hemp fibres, and their seeds were used as food. Hemp has been grown extensively in colonial America and on Spanish missions in the south-west because it's a rapidly growing plant that's easy to cultivate and has many uses. In the early sixteenth century, farmers were required to grow hemp in Virginia, Massachusetts and Connecticut.

The tetrahydrocannabinol, the chemical responsible for marijuana mind modification effects, had minimal levels in these early hemp plants. There is some evidence of the psychoactive properties of cannabis plants that ancient crops produced. We may have produced other organisms for use in religious rituals or curative procedures to generate higher rates of THC.

The tombs of shamans in China and Siberia from 500 BC were filled with burned cannabis seeds.

Sir William Brooke O'Shaughnessy, an Irish doctor who worked in India, discovered that extracts of cannabis could help relieve stomach pain and vomiting among people with cholera in the 1830s. In the late 1800s, cannabis extracts were sold in Europe and the USA to hospitals and doctors' offices, to treat problems with the stomach and other disorders. Scientists later discovered that THC was the source of medicinal properties for marijuana. Being the psychoactive agent that affects the brains in marijuana, THC also interacts with brain areas which can reduce nausea and induce hunger. Currently, the United States' Food and Drug Administration, due to the treatment of nausea caused by cancer chemotherapy and loss of appetite by patients with AIDs, has approved for two THC medicines to be administered in pill form, Marinol and syndros.

The Scythians – a large number of Iranian nomads in Central Asia – were identified by an ancient Greek historian called Herodotus. They were breathing in the smoke from smouldering cannabis seeds and flowers to get high. After around 800 AD, Hashish (a pipe-smoked type of purified cannabis) had been commonly used in the Middle East and parts of Asia. Its rise in popularity was consistent with Islam's expansion in the region. Alcohol and certain other poisoning drugs were forbidden in the Quran,

but cannabis was not forbidden directly. Marijuana was not commonly used in the United States until the early 1900s for recreational purposes. Immigrants from Mexico to the USA brought the recreational practice of smoking marijuana to American culture during the tumultuous years of the Mexican Revolution. In the wake of the Great Depression, widespread unemployment and social unrest drove Mexican immigrants and public fear of "the bad herb," resulting in 29 countries banning cannabis by 1931, consistent with the proscription era.

The 1937 Marijuana Tax Act was the first US federal statute federally to criminalise marijuana. The Act laid down an excise tax on selling, owning or transferring all hemp products which effectively criminalised all but industrial uses of the plant. The first person to be charged in connection with the Act was Samuel Caldwell, 58. On October 2, 1937; just one day after the passage of the Act, he was arrested for selling marijuana. Four years of hard work were given to Caldwell. During the Second World War, industrial hemp continued to grow in the United States when the Philippines imported a significant source of the hemp fibre into the Japanese army. They felt motivated to cultivate it in domestic production. In Wisconsin, in 1957, the last American hemp fields were planted.

In the "War on Drugs" Act of 1970, signed by President Richard Nixon, the Controlled Substances Act abolished the Marijuana Tax Act. It included

marijuana under Schedule 1, along with cocaine, LSD and ecstasy. In 1972, a study of the National Commission on Marijuana and Drug Abuse (also known as "Shafer Commission") released a report titled *"Marijuana: a Sign of Misunderstanding*," which proposed that 'partial prohibition' be enforced, and lower penalties should be levied in the case of small quantities of marijuana. It was also cited by the National Committee on Marijuana and Drug Abuse. Nevertheless, the findings of the study were rejected by Nixon and other government leaders.

California was the first state to legalise marijuana for medical use by those suffering from severe or chronic conditions in the Compassionate Use Act of 1996. Cannabis can also be used for specific medicinal purposes by Washington, DC, 29 states, and the US territories of Guam and Puerto Rico. Electric Marijuana was authorised by 11 States and Washington, DC, as of June 2019. The first states to do so in 2012 were Colorado and Washington. In Alaska, California, Illinois, Maine, Massachusetts, Michigan, Nevada, Vermont and Oregon, adults can also light up without a medical prescription. Yet cannabis appears to be illegal under US federal law, and there is a continuing debate both in the USA and around the world as marijuana grows legally.

Marijuana is partially responsible for its unregulated legal status, both mental and physical. Euphoria, other mood changes, enhanced sensory

sensitivity and increased appetite, may have short-term effects. While many people have a "hot" sensation, many people might experience anxiety, fear or panic following the use of marijuana. If a person is using excessive marijuana or cannabis, they are most likely to experience adverse effects. In recent decades, the amount of THC in marijuana — the chemical that is responsible for the effects of the substance — increased significantly. The average THC of marijuana was roughly 4% in the mid-1990s. It rose to about 12% by 2014, with a limited number of tank strains containing THC levels up to 37%.

Benefits of Marijuana

The health benefits of cannabis are always growing, and here, we are going to show you the insights into the varied benefits of the plant. Cannabis is present in different forms. Today, after decades of being an illicit drug, Marijuana is being re-evaluated on a cultural and legal basis. The majority of Americans favour the legalisation of marijuana for medicinal or recreational use in recent studies. As such, many states have allowed marijuana for medicinal and leisure purposes or both. However, some experts and politicians want to see more clinical evidence to support clear marijuana benefits. In addition to more research, there are concerns that the possible dangers of marijuana may, in some cases, outweigh its benefits. Strangely, is it just about the advantages behind this substance? We will break down some of the most examined benefits and some considerations.

In the case of marijuana or cannabis, people have been controlled for at least 3,000 years, according to the National Institutes of Health. However, marijuana was not considered safe or successful by the Food and Drug Administration in the treatment of any medical condition even though, in June 2018, the treatment for certain forms of epilepsy was approved for cannabidiol as a substance present in marijuana.

Marijuana is not a one-size-fits-all line of treatment, as synthetic drugs can be beneficial in certain conditions but not all. It is known that some of its cannabinoids, such as cannabidiol (CDB) are considered beneficial in marijuana. CBD is one of the most widely studied marijuana cannabinoids. In another similar plant, called hemp, CBD is also present.

This friction has been somewhat compounded in recent times by a move toward legalisation, between the widespread perception that marijuana is an effective cure in a wide range of illnesses and the lack of medical evidence about its impact. Now 29 states, including the Columbia District have authorised medical marijuana — and recreational uses in some others. New research in addiction, has also shown a sharp increase in the use of marijuana in the United States. However, this trend is not correlated with the legalisation of marijuana in participating countries. This increase in use, however, raises serious public health issues.

An essential difference between the CBD and marijuana is that it contains just a trace of tetrahydrocannabinol (THC) cannabinoid, the hallucinogenic effects of the compound on the brain. Up to 40 percent of CBD can be present in cannabis plants. CBD is expected to affect the central nervous system in anti-inflammatory ways. This can lead to several advantages in the body. Even the effects of THC in conventional

marijuana remain unresolved. That is because, in some instances, it can be relaxing or painful, and this can cause specific side effects.

Therefore, the doctor has to generally determine whether the anti-informatory benefits outweigh psychological risks when considering marijuana for any medical condition. We are recommended by physicians to treat severe seizures and side effects of chemotherapy with one of the two synthetic versions of marijuana. Some of the most commonly mentioned benefits of medical studies, and even anecdotally, is the following list of marijuana benefits.

Pain management: cannabis contains hundreds of chemicals, many of which are cannabinoids. The chronic pain relief due to their chemical composition is related to cannabinoids. That is why a by-product of cannabis such as medicinal cannabis is commonly used for the relief of pain. Marijuana cannabinoids can reduce pain by altering the ways the brain perceives pain. This can help in treating chronic pain conditions, including arthritis; fibromyalgia; endometriosis; migraine as well.

This may also reduce side effects such as loss of appetite for cancer treatment. The use of non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, which can have adverse side effects, has, in some cases been substituted for medical marijuana.

Improves lung capacity: by comparison to smoking cigarettes, the lungs are not affected when consuming cannabis through smoking. Yes, a study found that cannabis significantly improves the lung's capacity instead of causing any harm.

Help lose weight: you will find, if you look around, the avid consumer of cannabis is typically not overweight. This is because cannabis is connected with helping your body regulate insulin while effectively controlling your caloric intake.

Reduced inflammation: CBD is thought to contribute to the reduction of inflammation when you use marijuana. This may potentially benefit inflammatory disorders, such as Crohn's illness, bowel disease, rheumatoid arthritis, reduced inflammatory of the body, etc.

Regulate and prevent diabetes: it is only essential that cannabis can help to control and prevent diabetes through its effect on insulin. American Alliance for Medical Cannabis (AAMC) studies has associated cannabis with stabilising blood sugars, lowered blood pressure and increased blood circulation.

Neurological and mental disorders: because of its effects on the limbic system sometimes doctors prescribe the following treatment conditions for mental and neurological health disorders; such as anxiety; epilepsy;

multiple sclerosis; Parkinson's disease; post-traumatic stress disorder (PTSD); Tourette syndrome; Sleep management.

Shows promise in autism treatment: cannabis is famous for calming and controlling users' moods. It can support kids with autism who often encounter violent moods.

Regulates seizures: a study on CBD has shown that seizures can be controlled. Studies on the impact of cannabis on individuals with epilepsy are underway.

Mend bones: cannabidiol is credited with healing broken bones, and it accelerates the process. It also helps to reinforce the bone in the healing process, according to the Bone Research Laboratory in Tel Aviv. It is also harder in the future for the bone to crack.

Helps with ADHD/ADD: ADHD and ADD people to find it challenging to focus on their jobs. They appear to have cognitive and attention difficulties. Cannabis has shown promise to support people with ADHD/ADD. Adderall and Ritalin are both known to be a healthier option.

Treatment for glaucoma: glaucoma leads to extra pressure on the eyeball that is painful for people with the disorder. Cannabis will help to reduce the pressure on the eyeball that gives persons with temporary glaucoma relief.

Alleviate anxiety: though cannabis also induces anxiety, it is possible to overcome it. Cannabis is taken with the right and controlled doses and can be used to alleviate anxiety and relax users.

Slow development of Alzheimer's disease: one of the causes of Alzheimer's disease is cognitive degeneration. Cognitive degeneration is practically inevitable as we age. Endocannabinoid Cannabis produces anti-inflammatory substances to regulate brain inflammation leading to Alzheimer's disease.

Helps with PTSD symptoms: PTSD affects not only veterans but any traumatic person. The effect of cannabis on helping people deal with PTSD has been researched and tagged legalised. Cannabis helps monitor fight or flight reactions and prevents overdrive.

Helps provide relief to individuals with multiple sclerosis: multiple sclerosis can be debilitating, and cannabis is considered to help. Multiple sclerosis results in painful contractions of muscles, and cannabis can help relieve pain.

It reduces side effects linked to hepatitis C and increase the effectiveness of treatment: hepatitis C treatment has many side effects, including nausea, tiredness, fatigue, and muscle aches. Some hepatitis C patients

may have months of duration. Cannabis can help reduce the treatment's side effects while simultaneously making it more effective.

Marijuana can cure sleep problems, including insomnia by calming effects. Sleep will also improve since the use of marijuana decreases pain.

Chapter Two

Marijuana Cultivation

Cannabis can include three types, cannabis sativa, cannabis indica, and cannabis ruderalis (APG II system) or one component, which may be part of the Cannabis family. Usually, it is an annual, dioecious plant (each plant is either male or female).

C. Sativa and C. Indicas typically grow tall, with some varieties up to 4 meters or 13 feet. The season shifts between summer and autumn. Female plants make tetrahydrocannabinol (THC) of up to 31 percentage by weight. C. ruderalis is very small and contains trace amounts of THC only, but it has a high level of cannabidiol (CBD), which can account for 40% of cannabinoids in a plant and is an antagonist for THC. But the commercial hybrids of ruderalis, indica and sativa (usually called auto-flowering) cross-bred hybrids are available.

Cannabis requires certain conditions to grow properly.

Growth medium: soil is needed, except in some cases where cannabis is grown with either hydroponics or aeroponics

Sufficient nutrients: commercially used potting soil usually indicates this as "N-P-K = x%-y%-z%" which is the percentage of the fundamental nutritional elements needed, which are: nitrogen, phosphorus and

potassium. Nutrients are often supplied by fertilisers to the soil, but caution is required. PH should be from 5.8 to 6.5. The soil pH should be modified for this level. Industrial (even organic) fertilisers appear to make the soil more acidic.

Warmth: the optimal cannabis' average temperature is 24-30 °C (75-86 °F). Temperatures above 31 °C (88 °F) and below 15.5 degrees C (60 °F) tends to decrease its strength and slow rise. The plant is experiencing minor shock at 13 °C (55 °F), while some strains temporarily withstand frost.

Light: light can be natural (indoor growth) or artificial (outdoor growth). The plant stays typically under artificial light for 16-24 hours of light and zero to eight hours of darkness between germination and blooming, with longer light cycles being conducive to vegetative growth and longer dark cycles being conducive to blooming. Cannabis typically only needs 13 hours of continuous light to remain in the vegetative period. The "Gas Lantern Routine" is an alternate lighting method, useful in cannabis cultivation, while a considerable amount of energy is being saved. Cannabis plants require light and dark hours for optimal health. Cannabis has been suggested to show signs of decreased photosynthesis, lack of vigour and an overall decrease in vascular growth when it experiences a constant illumination regimen without an obscure time. Floration is

typically triggered by having total darkness for at least 12 hours a day. Cannabis blooming results in a hormonal reaction in the plant is caused by increasing the duration of its dark cycle, that is to say, that the plant requires sufficiently long darkness to begin with bract/bracteole. Some Indica species require just eight hours dark to start blooming, while some sativa species require up to 13 hours.

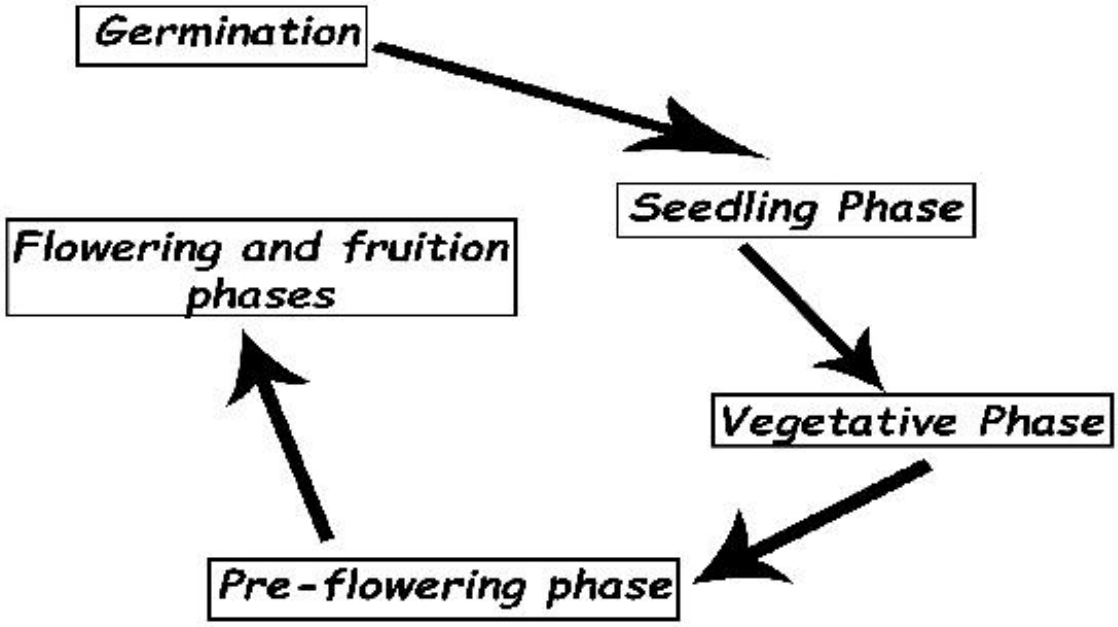
Water: watering frequency and quantity are dictated by many factors, such as temperature and light, plant age, plant size and the growth stage and water retention ability. The wilting of the leaves is a noticeable indicator of water problems. If the growing medium gets over-saturated, too much water will destroy cannabis plants. The fundamental explanation is that oxygen cannot reach the root system, owing to waterlogged, stagnant environments, while anaerobic bacteria continue to accumulate. The plant roots, beneficial bacteria, nutrients and fertiliser begin to be ingested. The ground should be allowed to dry correctly before re-watering when using soil as a growth medium.

Humidity: moisture is a big part of growing plants. Dry weather can limit photosynthesis rates. Ideal amount or level of humidity required for optimal growth is 40%RH-60%RH.

Nutrients: roots remove nutrients from the soil. Once soil nutrients are reduced, nutrient Soil Enhancements (fertilisers) are added. They can be chemical, synthetic, liquid, or powder fertilisers that typically have a variety of ingredients. The level of NPK (nitrogen, phosphorus and potassium) is indicated by commercial fertilisers. In general, across all life stages, cannabis needs more N than P and K. It is recommended that there be secondary nutrients (calcium, magnesium, sulfur). The deficiency is seldom observed in micro-nutrients (e.g. iron, boron, chlorine, manganese, copper, zinc, molybdenum).

Since the nutrient requirements of cannabis differ significantly from one form to another, trial and error method is used, and fertilisers are applied sparingly to avoid burns of the plant.

Growth stages of Marijuana



Germination: germination is the mechanism by which seeds germinate, and the root arises. It takes between 12 hours and eight days in cannabis. Warmth, darkness and humidity cause metabolic processes, such as hormone activation, which activate the embryo expansion into the seed. The seed cover cracks, and a small embryonic root emerges and begins to descend if put it in a properly developing medium (because of gravitropism). Soon (after two to four days) the root is attached, and the seed shell's remains are removed, and two circular embryonic leaves (cotyledons) are seen in their search of light. This is the start of the planting process. Germination is started by sowing seeds in a cup of water at room temperature, in wet peat pellets, or potting soil, or with wet Paper

Towels. Peat pellets are commonly used as a germinating method since saturated pellets can be planted directly into the plant's intended growing medium with minimal shock.

Seedling phase: when the seed coat is split, the seeding stage begins and reveals the "Semitic seeds" or cotyledon roots around. It lasts one to four weeks and is the most vulnerable time of the plant life cycle that requires moderate moisture, medium to high light intensity and sufficient but not excessive soil moisture. During this process, most indoor manufacturers make use of compact fluorescent or T5 fluorescent lighting. HPS and MH lights generate large quantities of radiant heat and increase the transpiration rate in the plant, which can dry up seedlings quickly with their little root systems.

Vegetative phase: length or duration for the vegetative phase is from one to two months. At the current stage, according to genetics in the particular plant, the plant needs a significant amount of light and nutrients. It keeps growing vertically and develops new leaves. Its sex starts to manifest itself, which is an indicator of the beginning of the next step. At the same time, the root system develops in search of more food and water. If the plant has seven sets of real leaves and the eighth one which barely appears at the centre of the growth tip or the apical meristem (SAM) is shot, the plant is in the vegetative growth process. The plant focuses mainly on the

growth of leaves, stems and roots during the vegetative process. For strong floral growth, a healthy root system is required. One or two months before flowering, a plant needs to mature. When the plant reveals its sex, it is ready. Size of the plant is a good sex predictor. Because of their raceme type inflorescence, the female plant appears to become shorter and branchier than male plants' flowers develop in panicles. The male plants are then usually reared when detected, to avoid fertilising the women to produce parthenocarpic fruit (popularly known as "sinsemilla," meaning "without seed").

During the vegetative process, farmers usually use a photoperiod of 18 to 24 hours, since the seedlings grow faster when they get more light. Still, for optimal health, a warmer and cooler cycle is appropriate. Although no dark period is mandatory, farmers are debating whether a dark season is helpful, and many people do use dark seasons. Energy savings also help with the darkness as plants collapse late in the day and lighting is thus less productive late in the night. The time spent growing cannabis plants indoors at the planting stage depends on flower size, the light used, space size and the number of plants expected to flower at once and how high the strain is in "the run."

Cannabis farmers use nitrogen or potassium fertilisers and full micro-nutrient fertiliser during the vegetative cycle. As plants grow and become

more durable, the strength of the fertiliser is slowly increased.

Advanced cultivation methods include:

Super cropping, LST super cropping and whole systems and methods such as the No-dump NIMBY method, the Hempy Bucket system, and the KRUSTY Independence Bucket method are all the techniques for training and realisation, including Screen of Green(s) as SCROG (super SOG). Work on cannabis production for Marinol and other more viable and more commercially available types of medicinal products based on cannabis have further expanded the cultivation envelope into all laboratories, both public and private.

Use of an air-based growth medium or water (known as aeroponics and hydroponics respectively)

The use of organic compost fertilisers or homemade fertilisers

The emphasis on advanced cultivation technologies and the development of hybrid strains (names such as Northern Lights, Master Kush, NYC Diesel) are thought to have led to the overall increase in cannabis quality and variety available commercially in recent decades. In particular, the Internet has brought widely diverse genetics together through exchange and creation from around the world. However, well-grown strains of

heirloom are used for the harvest of 1 gram per watt (g/W) (e.g. island sweet skunk, fruity Thai), etc.

Pre-flowering phase

It takes one day to two weeks to achieve the pre-flowering stage, also known as “the stretch.” In this time, most plants will spend 10–14 days after the light cycle has been modified to 12 hours of obscurity. With the plant doubling or increasing in size, plant growth increases dramatically. At this stage, more branches and nodes occur as the structure for flowering increases. The plant starts to grow bracts where the branches touch the trunk (nodes). The plant can bloom before the flowerings suggest.

Flowering and fruition phases

The blooming time for pure indica ranges for six to 22 weeks with a shorter period of flowering than pure sativa. This the intermediate flowering period of the hybrid indica/sativa strains. In the first point, the actual blooming, the sex is evident. Males make ball-shaped flowers with clustered shaped panicles, like grapes. The majority of plants (except for auto-flora which flower independently from photoperiod) begin to flower with decreasing light. Cannabis plants naturally sense the next winter as

the world turns around the Sun and the daylight is reduced. The next step involves the fruiting of the female inflorescences not pollinated (that is to say, male pollen fertilised) in the final effort to pollinate by windborne male pollens which contain white sticky resin-containing glands (or trichomes). The trichomes produce resins containing the two major psychoactive compounds, the largest concentrations of THC and CBN. The fertilised females also develop resinous trichomes, but seed production requires more plant energy which may be half the mass of the fertilised bract, so infertile cultivation is favoured to increase the amount of resin per gram.

Inflorescence that does not contain seeds is called “sin seed” (which is sometimes misspelt as one word and is translated into the Spanish term "no seeds"). Powerful sin seeds are especially crucial for medicinal patients to reduce their cannabis use for relief. The quality and development of cannabis with seeds are usually considered to be inferior.

Cannabis grown is caused to bloom by a photoperiod decrease to a minimum of 10 hours a day of obscurity. The number of hours of darkness must reach one crucial point to induce a floral response. The shorter the overall flowering period, the less the yield, and generally, the more hours of darkness each day. In comparison, the less dark hours a day, the longer the total flora, and the higher the production. The majority of farmers

usually change their lighting period for 12 hours as a happy medium to which most strains respond well. This shift in photography reflects the plant's natural external cycle, with up to 18 hours of light a day in summer and less than 12 hours of light in autumn and winter. Some “semi-auto-flowering” strains, particularly in outdoor climates, like the UK, begin to bloom with as much as 16–17 hours of light a day. In July, they can usually start to flower and end much earlier than any of the other strains, particularly those not grown outdoors. Half self-flowering strains may be harvested before very wet and cold weather in northern latitudes (generally in October), while other strains will be flowering and may be subject to wet weather botrytis (grey mushrooms). In the alternative, the flowering cycle may be induced artificially by blacking out plants for 12 hours a day, for example, covering the plants in black plastic which, during this time, removes all light so that the plant can even flower for long days.

While flora hormones (including cannabis) are present in most plants during all stages of development, exposure to light inhibits them. The plant has to be exposed to at least eight hours daily darkness to induce flowering, and this number is very strain-specific. Bract or bracteole is the most prized (with cannabis) flora from other cannabis plants. The bract or bracteole is visible to the naked eye during the late era. The growth of bract or bracteole starts around one to two weeks following the reduction

of the photoperiod. The plants typically diminish in size and threefold during the first weeks of flowering. The growth of bract or bracteole ends in flowering for approximately five weeks, following the "blooming" bract or bracteole stage. The buds increase considerably in weight and size during this period.

How to grow Marijuana outdoors

Cannabis growth is an enjoyable and satisfying experience, but it also takes time and energy. Indoor growth is probably too expensive an option for a first-time farmer with limited resources. The good news is that without a significant monetary investment, a small outdoor garden will grow a lot of quality cannabis. You can grow cannabis successfully when you have access, in a private yard, to a sunny spot or even to a balcony, a terrace or a roof. The guide will discuss all the various factors that you need to take into account to create your first outdoor marijuana garden.

Cannabis can be grown outdoors in pre-made or commercial soil either on natural soil or in containers. Many strains function in outdoor environments better than others, an attribute dependent on different factors, variables and aspects. Outdoor cannabis strains, like most other types of varieties, can be purchased at several places, and over 100 different strains of cannabis are cultivated outdoors, with many of these outdoor cannabis grains being directly copies or explanations of other pre-existing strains or seeds. The plant requires fertile soil and a long hour of light to produce optimal amounts of THC-containing resin. This means that THC output is optimally performed at 35° of the equator temperature for outdoor development. Mexico, Nepal, Northern India, several parts of Africa, Afghanistan, America and Australia, are the traditional growing

regions. Cannabis is mainly germinated in the subtropics from late spring through early summer and captured between late summer and early autumn.

In rural and urban areas, outdoor cultivation is conventional. Outdoor farmers tend to cultivate Indian strains due to their high yields, rapid maturity and short stature. For individual desert farmers, it is sativa that tends to grow in their region and in guerrilla farming as well, i.e. to plant cannabis in remote areas, such as forest clearings or mountain cliffs, because of its high (cerebral) heads, better response to sunlight and reduced odour emission. Such a technique is vulnerable to theft, however – to such an extent that some imaginative farmers also tie pots to trees to reduce this opportunity. Guerrilla growth has led to Operation Overgrow, an environmental campaign where the plant is cultivated with the explicit intention of incorporating the plant into the natural ecosystem.

To be planted outdoors, farmers prefer areas where sunlight takes 12 or more hours a day. In the northern hemisphere, farmers typically develop seeds for the full four to nine months of growth in mid-April, the late of May or early June. Mid-September to earlier October, harvest usually takes place. Northern places are favoured in North America (especially in the North Coast of California and British Columbia), but southern places are considered to be reliable producers (such as Maui, Hawaii).

When local law does not allow for the cultivation of cannabis, farmers often cultivate in forests or in rugged, rural areas where local people will not find the crop. Cannabis is often grown covered by a more abundant crop like maize. This is claimed to be popular in the Midwestern states by the United States government. As camouflage accompanying plants, bamboos and elderberries are also used. Some government agencies like the DEA have reported that cannabis farmers, defending their cultivations with booby-traps, have injured people in state and national parks; although, there had been no arrests or convictions in 2007 for these injuries.

Benefits of growing weed outdoors

Low costs: you don't have to spend a lot of cash outside, depending on the strength of the light. You will need some soil, fertiliser, seeds or clones, and maybe a small greenhouse to start. Electricity for lighting, AC or dehumidifiers is not required, and rainwater can also be collected.

Big yields: the sky is the limit when planting outside. So long as they are manageable, you can let them get as big as you want. One plant can produce up to one pound of weed! It's plenty and better to grow than just a handful. Your room is far more limited with an indoor development.

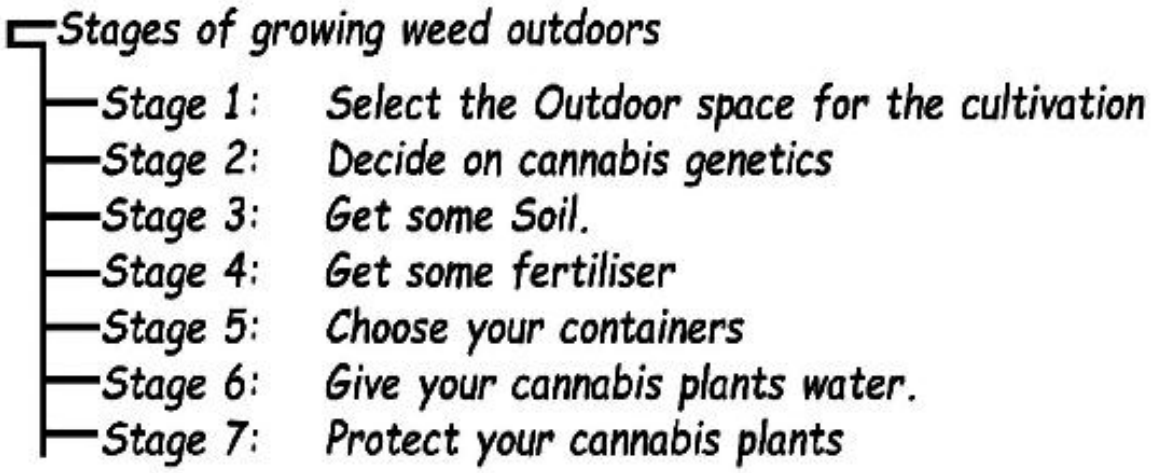
Environmentally friendly: indoor growth can be inefficient with running all those lamps, fans and other appliances by using a lot of energy. The sun is free with the wind!

It's fun and relaxing: don't underestimate gardening's therapeutic benefit. It's easy to spend a while out, roll up your sleeves and dirty your hands for a bit. And when you grew up with nothing more than cigarettes.

In the area you are to develop, it is essential to have a clear understanding of the environment. Cannabis is highly suitable but vulnerable to harsh weather conditions. Sustained temperatures above 86 °F will stop developing, and plants can suffer damage and stunting, even death. In contrast, continued temperatures below 55 °F, heavy drops of rain and winds can damage the plants and reduce yield. Excess moisture can lead to mould and powdery mildew, especially during the blooming stage.

You have to consider how the day varies in your region during the seasons, in addition to weather patterns. For example, on the summer solstice (the longest day of the year), at 32 °N latitude (San Diego), you will experience a little more than 14 hours of daylight while on the same day at 47 °N (Seattle), you will have around 16 hours of daylight. Appreciation of the amount of sunlight all year round is necessary to make plants "flat" in their buds from foliage to bloom. It is worth using local tools since

experienced gardeners in your area are well versed in growing flowers and vegetables and you can also use this knowledge for growing cannabis. You'll probably find that growing cannabis outdoors is a relatively simple effort if you have any experience with gardening and vegetation.


Stages of growing weed outdoors
Stage 1: Select the Outdoor space for the cultivation
Stage 2: Decide on cannabis genetics
Stage 3: Get some Soil.
Stage 4: Get some fertiliser
Stage 5: Choose your containers
Stage 6: Give your cannabis plants water.
Stage 7: Protect your cannabis plants

Stage 1: select the outdoor space for the cultivation

Choosing a space to grow in the open is one of the most important choices, especially when planting in large stable containers directly in the dirt. The most direct sunlight possible will be on your cannabis plants, preferably around mid-day, when the light is more durable. As the time changes and fall approaches, the days you have to plant, which triggers the flowering stage, have less and less sunshine. A steady breeze is healthy for your plants and in hot climates in particular. However, if you live in an area with strong winds, consider planting something like a fence or a large hedge near a windbreak.

Finally, privacy and protection will be considered. Many people would like to hide them from their neighbours and possible thieves in their gardens. High fences and big shrubs or trees are your best option if you don't live in a remote place. Also, most government legislation mandate that cannabis crops be removed from the street. Some farmers cultivate in containers at balconies or rooftops, while others build heavy-weight wire cages to keep robbery and animals away. Whatever you decide is your last plan – outdoor cannabis plants can grow up to 12 feet or more depending on how you let them grow.

Stage 2: decide on cannabis genetics

You should also agree on the best strain for your specific environment as the location is a significant determinant for the success of your outside cannabis. If you are living in a region that has a tradition of cannabis cultivation, several varieties are likely to thrive, and some might have been grown specifically for your environment.

Seeds versus clones

Seed plants can be healthy when compared to clones while both are still young plants. In early spring, seeds can be planted directly into the garden even in cold, wet weather conditions. Although there is no guarantee what you'll end up with as this is the significant disadvantage to develop from

seed. If you do not feminise your seeds, you may end up with male and female, to get rid of the male (female grow buds only) you will need to sex them out. Even if all females have a single strain, each one is a different phenotype. You need to select the best phenotype and it can be a long process to achieve the best form of that strain. Many farmers begin with feminised seeds.

You can buy clones or seedlings from a local dispensary depending on the legalisation of cannabis in your state. Some farmers stay away because they fear they are not as strong as seed crops. Another common alternative for outdoor growth is auto-flowering seeds which begin to bloom as soon as they mature irrespective of the day's length. You could either have a fast-growing crop or use auto-flowering weed for many harvests a year. They appear to be much less active than auto-flowering cannabis.

Stage 3: get some soil.

Soil is generally made up of three components in different ratios: clay, sand, and silt.

You may plant or place seeds directly on the earth and place them in pots. Infertile soil with biological matters, cannabis plants flourish and require good drainage. You will have to consider and change your soil composition accordingly if you want to plant directly in the soil.

Heavy clay soils gradually drain and don't retain oxygen, so they have to be significantly modified. Cut large holes into large volumes of compost, manure, worm castings, or other rotting organic matter, at a minimum of one month in preparation. Aeration and drainage will be provided, as well as plant nutrients.

Sandy soil is easier to work with, drains quickly and heats rapidly, but, it does not absorb nutrients well, especially in rainy conditions. Again, you would have to dig large holes for your plants, to allow the soil binding together and apply compost, peat moose or cocoa coir. Sandy fields should be paved in warm climates to help preserve water and keep roots from being too dry.

The perfect cultivated medium is silty soil. The process is simple; it heats up rapidly; it has excellent moisture, drainage and lots of nutrients. Dark, crumbly loam is the best silty soil – it is fecund and is not likely to require any alteration.

You should test your soil, which is simple and relatively inexpensive if you want to produce good results and eliminate headaches. A ground test service will inform you of your soil composition and pH, warn you of all pollutants and recommend materials and fertilisers for soil modifications.

Stage 4: get some fertiliser

Cannabis plants require a significant amount, primarily in the form of nitrogen, phosphorus and potassium, of nutrients during their life cycle. The way you should feed it depends on the composition and methods of the soil. Commercial fertilisers for home gardeners can be used if you know well how they work and what your plants need. A first farmer, however, may want to avoid these, particularly granular fertilisers for long releases. Organic fertilisation profits entirely from microbial soil life and reduces toxic runoff to a minimum. Within the nearby household and garden shops, there is a range of natural and organic fertilisers available such as blood meal, bone food, fish meal, bat guano and kelp. Start with cheap and readily available fertilisers. Some of these materials emit nutrients rapidly and efficiently, while the rest take weeks or months to emit available nutrients. If done correctly, you can combine any of these items with soil modifications to provide ample nutrients for your plant's entire life. Once more, it can be beneficial to get your soil checked, for knowing the way to alter your soil and how many fertilisers you can use. If you don't know how much to use, be cautious — you can always beef up your soil if your plants show shortcomings.

Stage 5: choose your containers

When you don't have enough soil, you may have to put all your plants in containers. Furthermore, if you cannot do the hard work required for

digging holes and amending the soil, containers may be the only way to produce your cannabis outside. You may place the container on decks, patios, rooftops and many other locations, without needing a suitable patch of earth for the garden. You should take advantage of the Sun to shield them from extreme heat or Wind, if necessary, during the day. You can also use indoor cannabis nutrients as you use pre-premixed soil. It takes plenty of devaluation from your plants to fertilise.

However, plants grown in pots, containers, or barrels would possibly be smaller than plants planted in the soil, as their root growth is limited to container size. In the general sense, the size of the pot can decide the plant size, but when appropriate techniques are used, large plants may be grown in small containers. 5-gallon pots are usually ideal for outdoor plants of small to medium size, with 10-gallon pots or larger ones being suitable for large plants. You may want to protect your plants' roots during warm weather from overheating, regardless of size, as the pots will get heated in the direct sunlight quickly. This will severely constrain your plants' growth, so make sure you take shade when the Sun is high in the sky.

Stage 6: give your cannabis plants water.

While the use of rain and groundwater in outdoor cannabis gardens would most likely be beneficial to your plants, particularly in the hot summer months, some big cannabis plants will consume 10 gallons of water each

day in warm weather. Cultivators living in dry, arid spots often dig and place clay soils or rocks under their holes to slow the drainage or plant them in flawless depressions to funnel their runoff into others. Another right way to enhance the preservation of water is to apply water-absorbing polymer crystals to the field. Water your plants thoroughly in the morning, so they have ample supply all day long. Unless you live in a particularly rainy climate, you may need to boost your garden drainage because cannabis roots are susceptible to fungal diseases when water is blocked. These techniques include:

- Planting in high placed beds or mounds.
- Digging irrigation channels that would channel water away from the garden.
- Adding gravel, clay, pebbles, or perlite to your soil.

It's a good idea first to check your water, whether you're using tap or well water. The water can contain high dissolved mineral levels that can build up and affect the pH level of the soil or high chlorine levels that can destroy beneficial micro-organisms in the soil. Most people use filtered water. Watering would have to be done more often on plants grown in hot or windy environments because the Wind and high temperatures have to transpire quickly. Remember that overwatering is an inexperienced farmer's common mistake — watering deep is a rule of thumb, wait for the

top inch or two of the soil to be thoroughly dried before watering again. A cheap ground humidity meter is a perfect way to go for a newcomer.

Stage 7: protect your cannabis plants

Outdoor cannabis farmers must protect their plants from storms and other weather conditions that could harm or even destroy plants without having the ability to monitor the climate as quickly as possible from within.

Temperature changes: if you live in an environment with frost in late spring or early automatic conditions, consider using a greenhouse or other protective enclosures if you are living in an area where frost in late spring or early fall is typical.

Wind conditions: high winds can snap branches and stress plants excessively. Set a windbreaker if your garden is in a windy area or if you are anticipating a particularly strong hit. This can be as simple as joining and placing plastic sheets on your plants in the greenhouse.

Rain: rain is commonly seen as a pest by cannabis farmers though helpful for watering your gardens. It can hurt your crop seriously and cause mould and mildew. In particular, when they are flowering, you don't want rain on your cannabis plants. If you know that the plants are exposed, you can build a DIY greenhouse or just use plastic sheets and plates to create a temporary shelter.

Pests: it can be challenging to protect your cannabis garden from pests. You might need to keep big animals like deers away by building a fence around your field, depending on where you are living. However, it should be easier to tackle the wide variety of flying and crawling insects that can attack your plants. The best way to protect your plants is to preserve hygiene. Big, vigorous plants with pest resistance have a natural effect that encourages minor infestations. It is also an excellent opportunity to keep your cannabis plants away, as pesticides can quickly spread between them, and other flowers, vegetables and ornament.

Check the cannabis plants with an eye for pests a few days a week. If detected early, an infestation will be much easier to cope with. Many biological pesticides are specially formulated for use in cannabis, and beneficial insects are also an excellent choice. You will now be able to start your outdoor cannabis garden successfully. The cultivation and processing of plants is a friendly and enjoyable pastime, so note there should be a lot of time spent with your plants, and also have fun!

How to Grow Marijuana Indoors

Congratulations, you are interested in raising your cannabis plants for the first time! But before you turn your green dawn, you will realise that growing marijuana indoors presents the new hobbyist with a whole range of unique challenges and there is a tremendous amount of information available on this subject. Also, first-time farmers are supported by our simple, readily digestible guide to indoor production.

Cannabis can be grown indoors under artificial light in a soil-like medium, adding fertiliser if the plants have water. Indoor cannabis cultivation is more difficult and costly than outdoor cultivation, but it helps the farmer to control the growing environment fully. Any kind of plant can be cultivated more quickly indoors than outdoors by 24-hour Sun, extra CO_2, and regulated humidity that allows free CO_2 breathing. The use of hydroponics can also grow plants indoors. A growing plant medium (e.g. soil or grown substratum), water, nutrients, light and air (other than aeroponic farming), in which case a growing medium is not available, should be supplied to the plant for indoor growth.

A variety of plant growth lights are available. At present, metal halide or ceramic metals halide in the range of 3000-4000k is still the best light source for cannabis. Cannabis plants often need both light and dark

photoperiods, meaning that the lights need a temporary timer to turn them on and off. The optimal photographic cycle depends on the individual plant (some prefer long and short days, and some prefer the opposite or something). Recent LED technology advances have allowed diodes that emit ample energy for cultivating cannabis. Such diodes can emit light in a specific nanometer range, which enables complete control over the light spectrum. In the photosynthetically active range (PAR) of the spectrum, LEDs can generate all their light.

Reflectors for optimising light quality are also used in lamps. Electricity costs are not negligible at a medium growth density of 15 plants and 430 watts per square meter. Plants or lights are shifted to the same level of light so that any light coming from the lamps falls onto the plants. A slightly concave canopy can be accomplished with optimum efficiency, since both the periphery and middle of the canopy area are at the ideal distance from the source of light. Both the lamp and the plant are 0.6 m (2 ft.) long with sodium lamps at high pressure, and up to 10 cm (4 in) with lamps such as compact fluorescent lamps at high output. Every form of light can be brought remarkably closer to plants with adequate cooling. Still, there are reasons to choose another location other than the canopy, irrespective of heat problems: intense light causes the plant material to be bleached and, as the source moves closer, the total area of the canopy

reached by light decreases. Maximum efficiency is provided by maximising the area of the plant's square meter of plant material by the average light intensity (measured in PAR watts). Some farmers use a reflective material (often Mylar or Visqueen) to cover the walls of their walls or white paint to improve production.

A plastic sheet of 150 μm (6 miles) of PVC that is on one side white and the other black is one of the commonly used covering. The plastic is positioned on the white side to reflect light on the space and on the dark side of the wall to minimise fungal growth and mould. The flat white paint, with a high content of titanium dioxide, is another typical coating to optimise reflectivity. Some farmers consider the Mylar sheeting to be extremely efficient if it covers the room walls, as well as Astrofoil (which also reflects heat) and Foylon (a reinforced, laminated foil).

The farmer will maintain the perfect environment within the growing room as near as possible when growing indoors. Usually, air tempers with variations of not greater than 10 ° C (18 ° F) and a more relaxed night and warmer day are needed to sustain within a specified range of temperatures. The plants have to maintain sufficient CO_2 levels to grow efficiently. The energetic circulation of air within the increasing area is also necessary, typically by mounting an extractor fan and one or more oscillating fans.

The limiting factor for plant growth is carbon dioxide (CO_2), so that enough light and nutrients are available to plants. Increased levels of CO2 in the growing room include carbon dioxide bottled, carbon dioxide generators, a milk jug and a solution (which contains yeast which emits CO_2), a baker's soda and a mixture of vinegar in a container or dry ice.

Throughout the reproduction process, individual plants (like cannabis strains) emit a distinctive scent. This presents problems for people who grow in places where it is illegal or for farmers who may choose discretion for other reasons. The most common method of odour removal is via a carbon filter to take odorous air out. Most farmers only add a large carbon filter to their air collection device, removing a smell until the air is expelled. The installation of an ozone generator in the extraction line also removes the odour. The air is pushed by the extraction manufacturer through the ozone generator, and the odorous air is neutralised by mixing with ozone. However, the farmer must make sure that the air is filtered thoroughly until it is released outside so there is no odour escape. Excessive concentrations of ozone in the garden itself must be avoided or where the farmer or family can inhale it. Ozone itself has a peculiar smell and is toxic, although the molecule breaks down rapidly in atmospheric conditions (20 minutes to one hour).

There are various settings indoors that are used by people to cultivate cannabis. Some farmers may turn an entire space or wardrobe into a place for cannabis growing. The use of growing tents includes a relatively new configuration. They are plastic and / or metal-framed tents, which have light-safe glass doors and are coated in a solid transparent plastic reflective. Tents are available in all sizes, and many have even holes for exhaust fans/drives and mounting of hidden lights. Some farmers will create warehouses made of old coolers, wardrobes, drawers and the like.

The increasing availability of equipment, seeds and cultivation instructions has led to indoor growth increase in the last decade. Most marijuana consumers see so-called growth businesses as a much cheaper way of providing a reliable, higher-quality supply of cannabis. That is also the case in the more expansive businesses. They have proved themselves to be valid on a larger scale, and several law enforcement authorities have found farmers sufficiently large enough to manufacture a few kilograms of cannabis. In general, more expansive growth operations are more sensitive than smaller operations in detection. In the UK, so much cannabis is cultivated in illegal establishments that the UK is a cannabis exporter. After Class B drugs were identified in 2008, further alleged illicit operations were identified and in the 2009–2010 timeframe the police counted nearly 7,000 illicit facilities. Vietnamese adolescents are being

trafficked to and forced to work in the UK. Trafficked suspects are usually taken to prison where police harass them.

Differences in the cost of electricity bills are significant safety issues as individual light power generally increases its range from 250 watts to 1000 watts or more and because the lights remain day after day, there's light for a long time. Power companies report to the police when they detect a significant increase in power demand compared to past electricity costs for the household or when the electricity is being stolen by the meter. Using methods of energy conservation is a popular form of easement, for example: turn out light bulbs from rooms, buy energy-efficient appliances with less television or machine, buy low-power light bulbs and so forth. Individual plants (e.g. C. sativa subsp. indica cultivars) can emit strong odours as they develop, which can be used to detect illegal growing activities. Carbon scrubbers and ventilators are often used by farmers to monitor scents. They typically allow the air from the growing space to be forced into a system with activated carbon and then released outside. Some use a source of ozone. Ozone responds, effectively killing, with odour molecules in the soil. Ozone can, however, grow to levels that are dangerous for both farmers and plants. Ultimately, it is possible to keep windows firmly shut and to control smells with strong air fresheners. Externally ensuring to see if any smell comes from inside, also represents

a necessary precaution as often, farmers are used to the smell and do not understand how disturbing the smell can be. Many store plants for smell detection in more isolated areas, for example in the basement or the attic. Another less popular alternative is simply to develop a strain with a weaker odour.

This is also popular to store plants and lights away from the visitor's windows and areas, as plants will live in an attic or a basement. Some farmers will cover windows with light-resistant materials if they find this unworkable. It can solve the issue of avoiding blinding light but can blame neighbours and residents. The risk of fire is faced by many farmers. Fires are usually caused by faulty electrical appliances or wiring. Some of the most common triggers are shoddy installations and connections, unsuitable grounding devices and overloaded disruptors. Older or damaged cabling is liable to melt and short because of the large amount of electricity required for large-scale growing. Some commercial farmers steal electricity to cover electricity, and others fail to keep cabling free. Most farmers change light cycles so that when they are away, the light is enhanced. Plants that make contact with hot HID bulbs are another fire hazard. This is an issue not experienced by farmers using fluorescent bulbs with proper air circulation. Rumors can endanger farmers as much as any of the above problems. Sometimes, a few overheard sentences will lead to

a tip-off and thus easy detection. That is why many farmers are hesitant to think about farming cannabis.

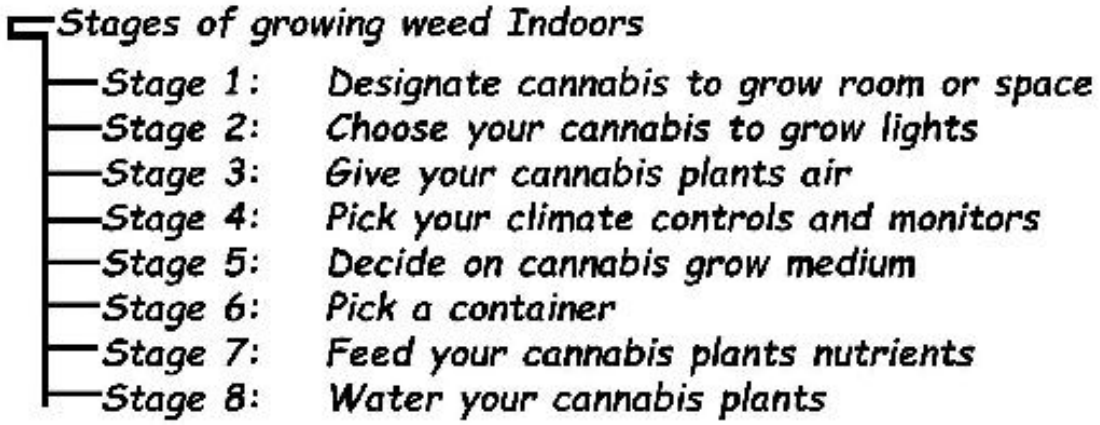
Benefits of growing weed indoors.

High-quality weed: while it is more resource-intensive and more resource-compatible than growing outdoors, you can monitor every aspect of your surroundings and what you put into your plants.

Adaptability: live in a house or an apartment? You can almost grow weeds anywhere, even people who lack a courtyard or a lot more space.

Multiple harvests: you don't need sun and seasons, as opposed to outdoor production. You can allow your plants to grow as large as you want, turn them into flowers, harvest, and immediately start another crop. Even though, in the winter you can grow whenever you want.

Privacy and security: you may want to hide the harvest from judgemental neighbours and possible criminals even in legal states. Growing indoors, you will discover yourself behind a closed door.


Stages of growing weed Indoors
Stage 1: Designate cannabis to grow room or space
Stage 2: Choose your cannabis to grow lights
Stage 3: Give your cannabis plants air
Stage 4: Pick your climate controls and monitors
Stage 5: Decide on cannabis grow medium
Stage 6: Pick a container
Stage 7: Feed your cannabis plants nutrients
Stage 8: Water your cannabis plants

Step 1: designate cannabis to grow room or space

In the first step, you build a suitable space to grow your cannabis. This place does not need to be a typical room — it can be an unfinished basement with a wardrobe, a bed, an armchair, a storage space or a corner. Just note that your tools (and plants) must be tailored to suit your room. You want to start small for many reasons when dealing with your first project:

- Smaller grows, less expensive to set up.
- Monitoring a few plants is more comfortable than monitoring a large number.
- Making mistakes is less costly as a small-time farmer

Notice that most new cultivators would undergo retrogressions and lose plants to pests or diseases. A failed cultivation of two plants is a lot lesser than a lot more plants in your pocket. You will need to consider not only

the amount of room your plants need but also the lighting and ducting systems, as well as fans and other equipment when designing your indoor garden. You must also leave enough space to work for you. In the early stages of the flora, cannabis plants can double in size so that sufficient headspace is available. You can open it or take away plants to work on it if your growing room is a fridge, tent or closet; otherwise, you have to make sure that you leave a room with an elbow.

Ensure your room is easily sanitised; when growing indoors, cleanliness is essential and straightforward surfaces are necessary. Topping, sheets and crude wood are all difficult to clean so that these materials should be avoided if possible.

Choosing a light-tight space is another central element. During dark times, light leaks can confuse and cause your plants to create male flowers.

Be mindful of the following factors when determining where to grow your cannabis:

Convenience: your plants have to be closely watched. It is necessary to check on them every day, and beginners should check in several times a day until everything has been identified. This crucial move would be difficult if your space is difficult to enter.

Temperature and humidity concerns: you may have trouble managing your growing space if your growing space is either very warm or very wet. It is highly recommended to select a clean, dry area with easy access to fresh outdoor air.

Stealth: you would most probably want to camouflage your growth from your neighbours and possible thieves, so make sure to pick a location that is unwelcome to nosy fans.

Step 2: choose your cannabis' to-grow lights

The light quality of your growing room is the number one environmental factor in the quality and quantities of your yield, so choosing the best lighting system you can offer is a good idea. Here is a brief overview of the most common types of indoor cannabis cultivation lights.

HID grow lights

HID lights are the standard for the industry, they are widely used to blend output, efficiency and value. HID lights are the industry standards. It costs a little more than fluorescent or incandescent devices, but it provides much more light per electricity unit. Conversely, the LED lighting is not as adequate, but for comparable units, it costs as little as one-tenth. The two major HID lamp types used for cultivation are:

Metal halide (MH), which produces white-blue light that is widely used for vegetative growth.

High-pressure sodium (HPS), which gives light to the red-orange end of the spectrum and is used during the flora.

In addition to bulbs, a ballast and hood/reflector for each light are required for HID lighting. Some ballasts are designed for MH or HPS use, whereas many newer ones are equipped for both. If both MH and HPS bulbs cannot be supplied, begin with HPS because they provide more light per watt. The magnetic ballast is less expensive and tougher on your bulbs than optical ballast but runs hotter. In general, but more expensive, digital ballast is a better option. Be wary of cheap digital ballast because it often does not have adequate shielding and can generate electromagnetic interference that affects radio and Wi-Fi signals. You will need air-cooled reflector hoods to mount the lamps, as HID bulbs produce a lot of heat if you do not grow in a large open-air environment with lots of ventilation. This includes ducting and exhaust ventilators that increase your initial costs but make it much easier to regulate the temperature in your room.

Fluorescent grow lights

Fluorescent light devices are popular for small scale hobby farmers, especially with high-output (HO) T5 bulbs, because:

They are usually less costly to install because reflectors, ballast and bulbs are included in one kit.

They do not need a cooling system because HID systems do not produce nearly as less a quantity of the heat.

The only downside is that fluorescent lights are less powerful, producing about 20-30% less energy per watt. Space is another issue as about 19 4-foot T5 HO bulbs will need to equal the output of a single HPS bulb, which measures 600 watts.

LED grow lights

The technology of light-emitting diode (LED) has for some time now been adapted to build super-efficient light systems for indoor growth only recently. The biggest drawback to LEDs is their expense: well-designed devices can cost 10 times as much as a comparable HID model. The advantages are that LEDs last a great deal longer, use much less fuel, generate far less heat and provide a complete spectrum of light that can provide better output and higher returns. Sadly, a lot of shoddy LED lights are made and sold to farmers, so do some homework and read product reviews before you put in your hard-earned money.

Induction grow lights

Another old technique, which had recently been adapted to suit indoor farmers' needs, is induction lamps, otherwise known as electrodeless fluorescent lamps. The induction light, invented by Nikola Tesla in the late 1800s, is a much more efficient and long-lasting fluorescent bulb version. Its costs and availability are the most significant downside.

Step 3: give your cannabis plants air

Plants require fresh air to survive, and the mechanism of photosynthesis is dependent on carbon dioxide (CO_2). You, therefore, need a permanent stream of air through the growing room that can be easily drained by a drain fan situated near the top of the room to remove warmer air and a filtered air inlet on the opposite end near the floor. You must make sure your plants keep their temperatures within a comfortable range, between 70-85 degrees F, when on, and between 58-70 degrees F when they are off. There are several varieties of cannabis (usually indica) that are more tolerant of higher temperatures on the colder side of the spectrum. The exhaust ventilator size depends on the size of your room, and the heat your lighting system produces. HID systems generate a lot of heat, especially when not installed in air-cooled caps. People living in colder regions frequently run their lights in the night to keep temperatures down.

It is best to set up your lights and activate them for some time before deciding how much airflow you will need to keep your plants happy. You can then pick an exhaust fan that suits your needs. Install a charcoal filter for your exhaust fan if the smell of flowering cannabis plants causes you problems. Alternatively, by using an air conditioner, dehumidifiers and supplementary CO_2 system, you may build a sealed, artificial environment, but that is very costly and not recommended for a first-time farmer. Finally, it is a good idea to keep your growing area in constant light, since this strengthens the stem of your plant and creates a less welcoming environment for flying and shaping pests. Of this reason, a wall-mounted circulating fan works well — just don't point it to the direction of your plants, as it can cause windburn.

Step 4: pick your climate controls and monitors

You would want to automate their functions after you have chosen your lights and climate control equipment. The beginner typically requires a simple 24-Hour Timer for the lamp and the adjustable thermostat switch for the exhaust fan. At the same time, sophisticated (and costly) systems that control lights, temperature, humidity and CO_2 levels are available.

When growing cannabis, the time of the light / dark cycle is very significant. In general, the weed can take up for 18 hours every 24 hours,

and then move to 12 hours of light for 24 hours. You must turn the lights on and off every day at the same time. Otherwise, you risk stressing your plants. A temporary timer is also available for your exhaust fan, but a much better choice would be to spend some extra dollars on a heat transfer.

With the simplest models, you just set the thermostat for your space and attach the drain fan to the desired temperature on the unit. When the temperature exceeds the point that you set, it turns on the fan until it is a few degrees less than and the specific threshold temperature decreases. This growing energy holds the temperature constant. As you most likely don't spend all the time in your growing room, it can be beneficial to keep tabs on conditions in your room by a combination of hygrometer/thermostat with a high/low memory. These small, affordable devices show you not only the current temperature and humidity level but also the highest and lowest readings for the last inspection.

Step 5: decide on cannabis grow medium

Growing at a house means that you have a lot of different media to choose from. Each medium has its advantages and disadvantages whether it is okay, well-styled pots with soil or the Rockwool plate on a hydroponic tray. Here we will look at the two most popular methods and the media they use.

Soil: soil is both the most common medium for indoor cannabis growing and the most forgiving, making it a robust first-time option for farmers. Any potting soil of high quality will work if it contains a prolonged artificial fertiliser (like Miracle Group). It is not ideal for the cultivation of edible marijuana. An excellent alternative for beginners is organic pre-fertilised soils (super-soil), which can cultivate cannabis plants without any added nutrients and, if correctly used, from the beginning to the end. You can do this by mixing a few wounds of worm castings, bat guano and other elements with good soil or you can buy them from some different suppliers beforehand. Like all organic cultivation, this approach uses a stable mycorrhizae population and soil bacteria to promote the transformation of organic matter into plant nutrients. Alternatively, use a standard soil mix and apply liquid nutrients to your plants when the soil is depleted.

Soilless (aka hydroponics): indoor farmers are turning more and more to the soil, hydroponic mediums for cannabis plants. This process requires feeding mineral salt nutrients with concentrated solutions, which are absorbed directly by the roots during the osmosis process. However, it also needs a higher degree of precision, as plants respond quicker or are more prone to under-feeding or nutrient lockout and burning. The method for quicker nutrient absorption leads to more rapid growth and higher yields.

Rockwool, vermiculite, extended clay, perlite and coconut are various materials that are used to name only a few. Commercial mixtures that combine two or more of these media to create an optimised through mix are commonly available. In automated hysteric installations or individual containers with hand-water, soilless media may be used.

Step 6: pick a container

The type of container you are using depends on your plants' medium, system and scale. A flood-and-drain hydroponic system may be used to grow several small plants with small net pots of clay or just a significant base of Rockwool. A “super-soil” can use 10-gallon nursery pots to cultivate several large plants. Inexpensive options include disposable plastic bags or cloth bags while others spend more on "intelligent pots," containers intended to improve the airflow into the root region of the plant. Most people use five-gallon buckets to cultivate their first cannabis plants. Drainage is essential since cannabis plants are highly vulnerable to water conditions; therefore, please be sure to drill the trough in the base and place them on the trays when repurposing other containers.

Step 7: feed your cannabis plants nutrients

Cannabis flowers of high quality require more fertiliser or nutrients than most common crops. The following primary nutrients (collective

macronutrients) are needed for your plant: nitrogen (N), phosphorus (P), potassium (K).

Although in much smaller amounts, these micronutrients are essential: calcium, magnesium, iron, copper.

You have to feed your plants at least once a week using the right nutrient solution if you're not using a pre-fertilised organic soil mix. These nutrients are sold in a liquid or concentrated powdered form, which is meant to be mixed with water and are typically formulated for vegetative or flower production. This is because cannabis uses a different form of macronutrient during its lifecycle and requires more nitrogen when it grows vegetatively. Most macronutrients are sold in a two-part liquid to prevent precipitation of individual elements. This means that two bottles (part A and part B) are to be bought for vegetation, two bottles are to be grown as well as a bottle of micronutrients. Most elements are to be sold in the liquid. Apart from these bases, a Cal/Mag supplement is the only other nutrient product that you will have to buy because some strains need more calcium and magnesium than others.

Just combine them with water as labelled and water your plants with this solution, when you have purchased the required nutrient products. You should always begin half-started because cannabis plants are burned

quickly. It is almost always worse to overfeed than to undernourish your plants, and over time you can learn to read them for signs of deficiency or excess. The pH meter is essential to test the pH level of your water when nutrients are mixed. Cannabis prefers pH in the soil from 6 to 7, and in hydroponics from 5.5 to 6.5. If pH is away from this range, a nutrient lockout can occur, which means your plants will not absorb the nutrients they need, so please ensure you periodically check your water and make sure that your nutrient mix falls in the requested range.

Step 8: water your cannabis plants

Some people don't think twice about their plants' water; it has to be perfect, because you could drink it, right? Well, depending on the region, there may not be a concern, but other water sources have high rates of dissolution of minerals, which can build up in the root area and harm nutrient intake. Certain places may have elevated chlorine levels in the water supply, which can damage beneficial microbes of the soil. Most people want to filter the water they use in their garden for these purposes.

During this process, it is most important not to overwater. When conditions are too wet, cannabis plants are very susceptible to fungal root diseases, and over-feeding is one of the most common mistakes of an inexperienced farmer. How much the plants are watered depends on the

source, plant size and ambient temperatures. Others will wait until the lower plant leaves slightly drop before they water them.

As you acquire knowledge and experience, you must alter your growing space and equipment to best suit your particular environment and techniques and unique stresses. Still, this article provides you with a solid foundation of information to begin on the correct foot. Remember, marijuana growing is a labour of love, spend a lot of time with the plants and have a lot of fun.

Chapter Three

Pest and disease that affect marijuana

In Soil Marijuana Remediation, we found that marijuana is a resilient plant, capable of removing soil toxins and restoring polluted soils. While it is often described as a “superweed” of many industrial offerings and medicinal skills, we should not forget that cannabis is still a plant at the end of the day. Plants are not resistant to diseases like living species. Plants are often continuously under threat as human bodies actively combat viruses such as the common cold virus. In this section, we will discuss some of the most common cannabis diseases that can affect your plants, as well as how you can both avoid and handle them when they happen. Cannabis diagnosis is not an easy task as infection symptoms may be widespread and often wrongly diagnosed. Are your plants wilting and yellow? It can be a sign of submerging or too much water. Again, unbalanced pH, over fertilisation, fertiliser burn, incorrect light placement, or adverse weather conditions, even pests, which are responsible for the majority of crop losses in cannabis.

There will be no lack of pests digging into your precious crops between fungi, viruses, bacteria, animals and insects. Sending lab check samples is the most appropriate option if you are searching for a scientific diagnosis

of a cannabis disease. Cannabis-specific laboratories (such as Anandia in Canada and Sunburst Plant Disease Clinic in America) provide tests for the detection of microbial contaminants.

The Dichotomous Key of Diseases and Pests is another diagnostic lab choice. This key enables you to recognise symptoms step by step with over 90 common cannabis pests and diseases. If you do not want a thorough study, however, or just want to know more about frequent cannabis and pests – the following are the diseases to keep a close eye on.

White Powdery Mildew (Cause: Fungi Golovinomyces).

Poor fungi. Not the juicy bottom mushrooms served over steaks in a smart restaurant, and not the pleasant "mycorrhizae." The following mushrooms are bad news. Cannabis pest mafia, at least 88 different organisms, which invade cannabis and operate secret networks to reproduce and kill, may be regarded as pathogens. Pathogens.

Powdery mildew is a notorious disease of cannabis and is not difficult to identify when it shows its face. The presence of PM is certainly alarming with a white-grey powdery substance on the plant's surface. PM, usually from the leaves and plant base, is perfect for spreading to the bud and flowers, where it is unusable. Although PM is ubiquitous in cannabis, much of these fungal pests activities remain to be known. While it remains

to be debated whether PM extends across the surface of the leaves and travels into the vascular system of plants, it is known that PM impairs the ability of plants to obtain vital nutrients. There has also been a debate about whether the use of PM-infected cannabis (especially for people with damaged immune systems) is dangerous for human beings but not about how it is distributed (by air and water), and whether it may kill a plant (yes, indeed).

Prevention in cold, humid conditions with overpopulation and too much water is by far the best way to tackle PM. It is essential to maintain a sanitary area with good airflow and clean equipment. Infection, however, is often unavoidable regardless of precautionary steps. Taking a close look at the blistering and odour of young plants and leaves helps identify the infection early as the most visible white powder precedes these symptoms. If avoidance fails, some herbal remedies are happily available for powdery mildew.

Gray Mould, aka. Bud Rot (Cause: Fungi Botrytis)

Botrytis is a disease affecting hundreds of plant species, including cannabis. While the plague can invade all parts of the cannabis plant, it is most frequently found in late-blooming plant buds. Just like our preceding disease, a flourishing grey mould is evident to the naked eye and one should take prompt action – because it can destroy the entire crop within a

few days. Some also claim that the grey mould poses a significant danger to cannabis farmers.

So how do we fight grey mould?

Prevention and early detection are your best bet, as with all fungal infections. Prevention, as we have seen with PM, begins with a sanitary environment for growing, with a good flow of air and drainage (low moisture) and plant space. Before the characteristic cotton-grey buds appear, early detection may begin. The colour and texture of the plant itself show the first symptoms of a grey mould infection. The leaves look dusty, the stalks soft and grey. Early grey mould can also surface as a powdery white material, which darkens to a grey, and finally a grey-brown slime over time. The inner damage to the plant, once visible to the naked eye, sometimes crosses the threshold. The best bet at this point is to eliminate the tissues or plants infected, so that nearby plants are not polluted.

Fusarium Wilt and Root Rot (Cause: Fungi Fusarium)

Many fungi are so capable for the destruction of cannabis plants that not long before the RIDs of illicit cannabis crops had been proposed for use as biocontrol agents. The suggestion was made that the suspected crop zones dusted with Fusarium fungus. This bioherbicide mostly found and "ate"

plants, rather than wasting valuable time and resources on finding illegally cultivated marijuana in Florida. Owing to Fusarium's propensity to mutate and the risk of "pirating" and washing off other crops, ecologists objected. We don't know whether fusarium has been used to remove medicinal crops, but we do know that it has been tested to delete weed. Fusarium was also proposed to disrupt food production and to harm national economies as a biological weapon. Strong, right?

So why, Fusarium?

It is a root and leaf-level soil-dwelling fungus that attacks the nutrients in the plant and restricts the water flow. Fusarium may cause leaves on lower leaves that turn yellow-brown before weeding, with the distinctive characteristic of dark spots. The broken leaves remain attached to the stem and drop down through the vine. The leaf tips can also be seen curling upwards. Often, red root is usually caused by Fusarium, in which the roots and finally the stem turns red and burst into areas and invite other agents of disease. Fusarium is one to avoid at all costs as it has no successful treatment and can quickly spread through soil, water and air.

Spider mites (Culprit: Arachnid Tetranychus urticae)

Spider mites are one of the "crossing dignified" cannabis diseases. Such mites will not only make your plants look Halloween-ready, but they are

instrumental in the destruction of cultures and complicated to get rid of.

Early signs of infestation are bite marks on the leaves that appear on the surface as tiny spikes (e.g. stipples). When carefully examined, the small mites on the underside can be seen, but most mites go unnoticed. The spiders are incredibly tiny, and the infestations are always concealed until after a significant amount of harm has been done, making their eggs even smaller. Leaves will eventually turn yellow, and the webs will soon appear. Spider mites work hard and quickly, and once again, avoidance is your best chance to deal with this epidemic. Spider mites thrive in a moist, dry environment as the previous fungal enemies. Temperature and moisture management are a safe way to avoid infestation and to practice proper sanitation consistently. Air circulation is also an ideal way to prevent plant diseases, as spider mites and mushrooms also enjoy stagnant air.

You're not alone when you're in a fight with spider mites. There are many potential ways of incorporating organic pest control, with organic insecticides and the introduction of predators being the most common.

Damping Off and Pythium Rot (Cause: Fungi/Protist Pythium)

Damping is a disease that affects seed and seedling caused by a range of pesticides, including the species Pythium. The infection prevents germination in seeds, which eventually leads to soft and dark "dead" seeds.

In seedlings, a noticeable browning occurs on the soil surface, leading eventually to a tree flopping over and leaving it yellow and fading. Damping affects seedlings and kills your plants even before they can develop. If your planting seeds show signs of damping, it is best to take them away to avoid pollution around them. Since this disease does not leave for treatment at any time, we see again that prevention is essential.

Through following correct sanitation procedures, you will avoid damping and ensure that your medium is "clean," rather than water-saturated. The first step is vital to take proper action to ensure that the soil is uncontaminated. Since this pest encourages moisture, it is also essential to have a low humidity environment and a good air circulation. Unfortunately, in seeds and seedlings, pythium doesn't stop. This pest can also cause root rot, which is often difficult to detect in a soil plant’s roots. Many other herbal disorders and nutrient deficiencies, such as yellowing, which is a nitrogen deficiency, are imitated by symptoms of the root red plant. In the roots, you will find a dark slime with a foul smell, the tell-tale sign.

Beneficial microbes are one of the best ways to prevent and treat pythium red, particularly at the root level where aerobic bacteria (compost tea product) and mycorrhizae live.

Pests that disrupts the growth of your weed

Amphids, funguses, gnats, thrips, greenfly, black fly, mosaic, moth, caterpillars, inchworms, whiteflies, white powdery mildew, stem red, and mammals like deer or cats are all pests that affect your marijuana plant.

Aphids: aphids live under the flower and have different shapes according to their stage of life.

Barnacles or Scale Insects: these defects are barnacles that cling to the plant on and below the stems.

Broad Mites or Russet Mites: these mites are so small that you will probably never even see them under a loupe. However, since your new leaves are twisted and shiny, you can tell that your plant is tainted. The whole plant is also poorly grown, and the buds might turn brown if they flower. Broad mites and russets are frequently mistaken for problems such as nutritional deficiency, heat stress or pH.

Bud Rot or Mould: when the bud hits, some buds can begin by becoming sickly-looking overnight with yellow and botched leaves. The interior of the bud is dead or molten when opened.

Caterpillars, Inchworms and Cabbage Loopers: caterpillars and worms eat trout in the grass, leaving droppings like black spots.

Crickets: "normal" crickets will mist over your leaves while mole crickets will dig and kill the roots of your plants.

Fungus Gnats: the mushrooms look like tiny dark flies. They are found floating around the soil that remains watery for long periods, and the larvae start creeping around the muddy surface of the earth. Plants become sick if a garnish infestation isn’t eliminated.

Grasshoppers: you may have seen these before, but the harmless garden animals will happily eat their marijuana leaves.

Leafhoppers: such bugs come in almost any colour, and it can be difficult to tell what they are after sometimes. However, they make clusters of spots on the leaves, and you know you have leafhoppers when you see these spots.

Leaf Miners: leaf miners are larvae that live in the leaves and tunnel inside them to eat!

Leaf Septoria or Yellow Leaf Spot: this fungus produces round yellow or brown spots, which often start symptoms in lower areas.

Mealybugs: such little white bugs look "hairy" and crawl on their leaves and buds.

Root Rot: root rot is a frequent problem in hydroponic systems, while containers also show similar symptoms with overwatering plants. Rotting

root plants and leaves can be discoloured. The roots turn brown, stubborn and slim in the reservoir.

Slugs or Snails: slugs and snails usually come out in the night, leaving holes on leaves with their bite marks on their borders. They are often left on and on the field slime paths.

Spider Mites: spider mites are often found in a developing room with little White speckles of their bites in their leaves. They are so small that they can be challenging to see, but below them is the best place to look. If enough live on the vine, you can see webbing.

Thrips: thrips leave unusual bronze or silver marks, which may appear like "dried spit" or small trails. Their young tend to be fast, small worms.

Whiteflies or Whitefly: flies look like tiny white moths and stick under the blades of cannabis.

Harvesting Cannabis

There are different goals when you are harvesting a plant:

Cannabis grown for smoking; a typical indication of the readiness of a crop for smoking is when most trichomes have turned cloudy (5% to 15%) When seeds are caught after fully developing and often when accompanying buds start to deteriorate; hemp grown for fibre is harvested before flowering; cannabis grown for cloning is not allowed to flow at any time; cannabis grown for smoking generally, drying and cure are obtained. The cure is the method of oxidation and polymerisation in sealed cannabis containers.

Dry: buds are placed in a monitored environment for removing moisture content in it.

Cure: buds are kept in a sealed non-plastic container and left in a dark place

Maturity is determined as to where, but before the cannabinoids start degrading/breaking down, THC and others cannabinoid productions have attained maximum levels. The trichomes of the flowers are studied in a 30x - 60x microscope. They are entirely clear when trichomes are undeveloped. They are white/skinned when there have maximum cannabinoid levels for trichomes. Trichomes gradually transform

amber/violet/red, as cannabinoid content is decaying. Harvesting before most trichomes are white may reduce overall efficacy and strength. Harvesting too late (last 15% amber) results in a more significant degradation of THC to CBN than sleepiness. Some farmers use a Brix to measure "sugar."

Curing

After drying the weed to 62%, it is tested for “cure” in airtight bottles. Many farmers cure for up to six months, and some do not cure at all. Like cigarettes, curing will make smoking more pleasant for cannabis. Curing pots are kept in a cold, dark position for the same purposes as when drying.

Brick weed consists in curing the entire plant and packing its crop (buds, stem and seeds) into a brick, hence the name brick weed. It is a short-term, and hydraulic, drying and pressing method of cannabis culture. This approach is used primarily to distribute cannabis in the most important countries, such as Mexico and Paraguay. Brick weed has a higher degree of THC and a stronger scent and taste.

Chapter Four

Post-Harvesting and Preservation Processes

The agricultural processing of wet and dried herbal materials for the production of hemp for commercial, food or health use is the Post-harvest processing.

Hemp Post Harvest Handling Facilities are a critical and often overlooked portion of the medical hemp supply chain for the development of CBDs. As the hemp industry continues to be young and rising, many new operators lack the right equipment for the production of a quality product, infrastructure and systems. Industrial hemp production (for fibre, seed and oil) is reviving as farmers rediscover technology that goes back 100 years and innovate new equipment, products and processes for creating the hemp industry for the 21st century.

The same necessary steps of post-crowd handling are needed, whether for industrial use or CBD extractions. Industrial Hemp Processing and Medical Hemp Processing standards and equipment are compared in the following.

Industrial Hemp vs High CBD Medical Hemp differences

High CBD Medical Hemp is a form of industrial hemp developed explicitly for the production of large quantities of CBD, low THC resin is used for the production of medicinal products for use in CBD (Cannabidiol) manufactures. Depending on the hemp harvest, the cultivation, the available equipment and the standard operation of the region, the processing practices and equipment differ substantially. The changing nature of the industry also contributes to the creation of specific approaches and technologies for different farms and areas.

A key understanding is that, while the two plants are the same species (cannabis sativa), they are grown and treated very differently when designing solutions for industrial vs medical hemp. Canola vs Broccoli is a good comparison – they are the same species but have been bred to create a different culture for hundreds of years. Canola is an oil saw crop, while broccoli is a flower head crop from a large variety of the same root. In hemp as well – some types of hemp are grown in oilseeds, some in food seeds, some in fibre and some in floral resin components. Many variants are dual-use or multifunctional crops that allow seed, fibre and then finally hemp biomass for CBD to be collected.

Industrial Hemp Cultivation Style: the growing of hemp for seed or fibre plants is close beside each other and promotes the development of long

straight stems and plenty of seed. It is beneficial for male plants to optimise the formation of the seed (and for males too, they are suitable for fibre). Plant distance is often 10 cm or even smaller, resulting in large, straight plant stands, almost like crops of maize, sorghum and sugar cane.

High CBD Hemp Cultivation Style: medical use of High CBD Hemp is better grown using different genetics in compliance with good husbandry practices. As compared to genuine industrial hemp selected for the production of fibre and seeds, high CBD medicinal hemp will yield full output of flower and resin. Resin-rich genetics – while low quantity in THC, is essential for this.

Hemp Harvesting

Industrial hemp processing: specially adapted processing machinery such as hybrid harvesters harvests industrial hemp. The hemp plant on the base is cut off, the floral head is cut off, and the stalk is sorted for fibre processing.

Harvesting of Medicinal Hemp: high CBD hemp usually is harvested manually instead. High CBD hemp is usually hand-haired to keep the flowers clean and sterile and to avoid rough handling of resin-rich trichomes.

Hemp Drying and Storage

The most crucial step in deciding the ultimate quality of the crop is drying hemp after harvest. When dried rapidly, cleanly and with minimal product damage or loss, hemp maximises food, medicine or fibre from harvest quality. On the other hand, if harvested too wet, dried too slowly or with inadequate ventilation, or infected with fungi or bacteria, it may become rotten, unsellable and entirely unsuitable for food or medical care. Many farmers who want to join the hemp sector do not schedule and prepare their drying plants properly. Hemp drying equipment can help speed up drying when preparing abundant crops.

High CBD Hemp post-harvest processing

High CBD hemp must be dried after harvest, to avoid damage and to ensure that valuable CBD and terpene content are preserved to a maximum. Drying is usually carried out inside large ventilated barns or in specialised drying chambers or equipment such as seed or drying systems for tobacco. These drying facilities are necessary for the production of food or medical products as an acceptable standard, for example, the floors should be clean and dry, and the drying product should not be polluted by insects or animal infestations (such as nesting birds). As the industry has expanded rapidly, most of the industry uses existing or modified drying equipment. In specific ways, they have been used in the past to house livestock (such as inexpensive stables).

Hemp plants typically hang upside down as whole plants or large branches until large stems for further processing are removed from the plants. The materials may now be ground and extracted (including small branches and leaves) or trimmed to a larger or smaller degree, depending on the chosen extraction process. For example, the majority of large-scale processors work with the entire plant material. Many processors prefer the separate processing of trimming buds for the manufacture of luxury oils or distillates. Many processors take centre stage and tend to process uncut buds, including sugar leaves but not fan or stem leaves.

Hemp Storage and Distribution

To ensure that product and packaging have strength, purity and cleanliness, hemp for use when manufacturing foodstuffs or medicines should be processed in the correct facilities that permit regulation of temperature, moisture, light and health care. To prevent loads from being mixed, each load must be correctly labelled and located. Storage and distribution facilities will provide quarantine, storage and processing areas for pending testing, customer approval and orders for shipping. The product should be processed in comparable conditions during storage, transport or shipment to ensure that the product is preserved in terms of consistency and integrity.

Tips for Growing Cannabis

Cannabis growing is a process that needs care, considerable time, energy, and money investments.

Get Better Buds with Less Light

You would be likely to make mistakes when you first cultivate cannabis. This has happened to the best of us. Lighting is often a standard error among beginners. This is especially true when your plants are grown indoors. You will leave your plants within 18-22 hours a day, while they are in a vegetative state. So, your plants will have a lot of growth and development over this time. Then, do you think your plants will be tented to do the same as they pass to the flowering stage? This is where the bulk of younger cultivators fail. You would reduce the amount of light your plants get to 12 hours per day when your flora reached the flowering stage. Wonder why? Contrary to what you might imagine, plant growth is caused not by light but by darkness. If your floral plants are kept in the constant sun, they can remain in their phase of vegetation. The seasons naturally control this light and obscure necessity when you cultivate cannabis outdoors. But you can also position your plant in the dark to protect your plants.

Cut Back on Fertiliser

Another important tip for growing cannabis is fertilisers. Cut off the fertiliser as the plants enter the growth point. Again, this may appear contradictory to what you have been taught about the cultivation of plants. Shouldn't the growth get better after getting these nutrients? Consider multivitamins to help you make sense of this. Is it prudent to use two or three times the recommended daily amount if you take a multivitamin? No, it's not, of course! You may get sick. The reality is that cannabis requires minimum survival nutrients. Just give it enough to prevent vitamin deficiencies, and care for your plants! Why do you think cannabis was always named "weed?" Excessive nutrients can cause the so-called “nutrient burn” which starts at the end of the leaves and spreads slowly in the absence of the condition. Burned leaves cannot produce and store energy for the plant, which will, of course, reduce your yield, and nobody wants that.

Drought Stress Boosts Potency of your Plants

Here's a tip from experts right here! Drying stress will increase your plants' strength. No! If the leaves of your plants are allowed to die a little because they don’t have enough moisture, they can curl at the ends and not stand up straight. The harvest you obtain will be higher than those from freely watered plants if you sustain this drought stress throughout the entire flowering season. This is because THC and other compounds are

stored more sparingly in the buds of plants. Put strawberries picked from a highly irrigated plant and compared their tastes to slightly watered strawberries. Think of it like this. The second plant's berries would taste better.

Choose Your Strain Wisely

One of the essential tips for cannabis cultivation is perhaps to note that not all cannabis plants are equal. Before you start planting, you must think carefully about the type of plant you like. Some strains develop purple buds, for example, while other strains develop bright green buds. Likewise, some plants reproduce, and others take longer.

Airflow and More Airflow!

The ventilation of the rising room is essential. This advice is so critical that it is included in the rules of cannabis cultivation rather than in tips of cannabis cultivation. Enough airflow may prevent the growth of the mould on the buds. It also helps prevent nutrient burning, as the plants "drink" more water to combat the heat when you're growing them. They also consume nutrients by taking more water, increasing the chance of nutrient burning. In areas with inadequate ventilation, spider mites, fungi, gnats, and other plagues flourish. As you can see, many of the challenges faced by cannabis farmers can be avoided by adequately ventilating the growing areas for optimal airflow.

Don't Shock Your Plants

One of the most critical tips for growing cannabis is to be sensitive to your plants. Do not do anything to shock them. For instance, do not move unexpectedly from 18 to 12 hours of light. Step up the dark hours gradually till you hit your perfect light schedule. Likewise, when the flowering stage is about to take place, do not avoid providing plant growth for the first day and use only the next day to bloom. This sudden shift scares your crops and reduces your growth rate. It is safer to change your plants slowly so that they can adapt appropriately without decreasing their production. Cannabis growth is pure, and fun and your plants will create a fantastic abundance with a little know-how. If you have grown cannabis before, what tips have you learned from the outlined of this book on cannabis cultivation? If you're just starting, which are you going to try?

Chapter Five

Conclusions

Cannabis cultivation, like all gardening, has become a specialty over time. You know quickly, but you have to master a happy stoned life—no excuse to grow your own. Nothing is intimidating. This method is not complicated and can be as cheap or costly as you want. An excellent place to continue your marijuana journey is to learn the fundamentals of cannabis cultivation. Making educated decisions in good time will optimise your final performance.

Hemp and marijuana are harvested for various purposes so that different conditions of growth are naturally required. Marijuana species in managed environments are selectively cultivated to maximise the characteristics of the breed and grow the resulting female plants.

Maybe marijuana, both lawfully and healthily, is one of the most controversial topics of the day. For both sides of the debate to agree on its usage in medicinal and recreational settings, more research on the effects of marijuana on the health is needed. Meanwhile, it is necessary to find a physician first if you are interested in the possible health benefits of marijuana. They will help you to understand the advantages of possible threats as well as the legalities of obtaining a medical marijuana card.